

REMARKS

Claims 1-9 and 13-17 currently appear in this application. The Office Action of July 9, 2007, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Rejections under 35 U.S.C. 112

Claims 4-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

Claims 4-6 have been amended to delete reference to "preventing or preventing recurrence."

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that it is unclear what ages are encompassed by "immature." This rejection is respectfully traversed.

Submitted herewith is a copy of "Tree Fruit Harvest & Storage Tips" from Washington State University which describes how fruits from trees should be picked. The article

refers to the fruits as "immature" or "unripe." It is clear from this article that, for a fruit, "immature" means unripe.

Art Rejections

Claims 1, 2, 4-9 and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuneo et al., JP 10-1025247 with Thomas et al., US 5972985. This rejection is respectfully traversed.

Submitted herewith is an abstract of Tsuneo which clearly states that the treatment for gastritis, gastric and duodenal ulcers and the like, comprises hops or hop extracts. There is nothing in Tsuneo that discloses or suggests a proanthocyanadine as claimed herein. The properties of the proanthocyanadine used herein are given at page 3, last full paragraph.

Claims 1, 3-7, 9, 13-15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikio et al., JP 11-180888 with Ariga et al., US 5773262. Mikio is said to teach a compound against H. pylori by blending a frit polyphenol containing fruit juice in solution to be pharmaceutically manufactured. Ariga is said to teach that proanthocyanidines are extracted from apples. This rejection is respectfully traversed.

Mikio teaches (please see abstract submitted herewith) that the food products active against *Helicobacter pylori* are antimicrobial. The polyphenol used in Mikio is not the same material as claimed herein, because the proanthocyanadines claimed herein are neutralizing agents for a vacuolating toxin (page 3, lines 33-35). It is clear that the Mikio compound has properties different from that of the claimed compounds, and therefore they are clearly not the same.

Claims 1, 3-7, 9 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikio. This rejection is respectfully traversed.

The Examiner notes that Mikio does not specifically teach adding the ingredients in the amounts claimed by applicant. It is respectfully submitted that the amounts used for antimicrobial properties, as taught by Mikio, may not be the same amounts needed to neutralize (attenuate) a toxin. These two functions are completely different from each other. Even if Mikio use the same amount as claimed herein, large amounts of the vacuolating toxin will eliminate around the gastric mucosa and will eliminate *H. pylori*. Accordingly, the results are different from those of the present claims, which are directed to neutralizing a vacuolating toxin. There is no way one of ordinary skill in the art can determine how much

proanthocyanidine to use neutralizing toxin, only knowing how much to use for antimicrobial properties.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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## TREE FRUIT HARVEST & STORAGE TIPS

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**Stone Fruit      Apples      Pears      Asian Pears      Storage Tips**

### When to pick stone fruit?

In the case of most stone fruits, when the fruit has colored well and is beginning to soften, it is ripe for picking. A taste test will usually tell you when a given variety is ready. Peaches and nectarines usually soften first along the **suture line**, which runs from the stem to the blossom end of the fruit. Pressing this area slightly with your finger will help check for softening. **Ground color** break is another good indicator of when fruits are mature for harvest. Pick as the **color break** occurs --as the greenish skin ground color turns to yellow, or cream color in white flesh peaches and nectarines. Harvesting before this often yields immature fruit of lower quality which may never ripen properly. A frequent complaint in buying peaches at the grocery store is that the fruit was picked immature, and the result is often poor quality and a dissatisfied customer. Check for color on shaded areas of the fruit, not the sun-exposed side where red color may come early and hide the green.

Some of the newer peach and nectarine varieties have been developed with high red color and firmer texture, making it more difficult to tell when they are ready to pick. Taste is still a good indicator of ripeness. Sample one, and if its level of sweetness is good even though the texture is a bit crunchy, it is probably ready. Fruits that you want to transport or save for display should be picked firm but mature. Fruit can be placed in a box lined with newspaper or other padding, with the stem end down. Avoid packing peaches and nectarines more than two layers deep or the bottom layer of fruit may be damaged. In a few days the fruit will soften and be ready to eat.

A more exact measurement for harvesting stone fruit uses the **refractometer**, an instrument that measures the percent of sugars -soluble solids- in a liquid (in this case the juice of the fruit). For those highly colored varieties with no visible ground color this is an effective method. Peaches and nectarines with readings above 10% will usually ripen well and taste good after they are harvested. When taking sugar readings there will be variation among the different varieties.

Some plums and apricots don't ripen off the tree as well, so canning or drying are recommended rather than trying to store extra fruit. Both will do some ripening off the tree but the window between immature and mature fruit is small. Remember that storing most stone fruits will be short-term to very short-term. Enjoy them fresh while in season or choose a method to preserve them that works for you.

### Maturity in apples

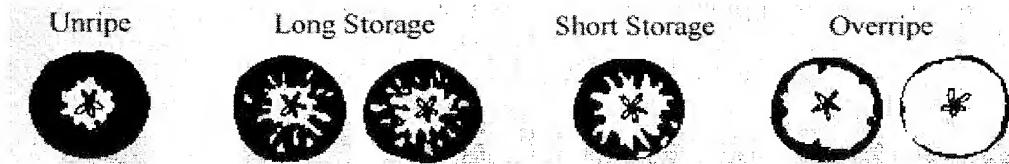
As apples ripen a hormone called ethylene is released by the fruit. This hormone acts on certain cells that separate the fruit stem from the spur on which it grows, called the **abscission layer**. As the fruit ripens, the cells in the abscission layer weaken causing fruits to eventually fall from the tree. In some varieties, like Akane and Gala, the bond is very strong and fruit hangs on the tree long after it is fully ripe. In other varieties, such as

Gravenstein and Spartan, the bond of the cells is weaker and fruit tends to drop before fully ripe. Commercially a "stop-drop" can be applied to retard the hormonal process for a several days until fruit ripens.

There are a number of methods used to check on harvest maturity in apples. A quick check is to cut a sample fruit horizontally and look at the seeds. Usually in later ripening varieties when the seeds become brown the fruit is ripe, but with early season apples, they may be ready to eat before the seeds turn brown.

As the fruit ripens, respiration increases (fruits breathe like we do) and the fruit begins to soften. At a certain point in its maturity, the fruit will go through a concentrated burst of increased ethylene and respiration, referred to as the **climacteric**. From that point the fruit is ripe and will reach **senescence** (die) and soften very rapidly. For storage we want to choose fruit that is mature but not necessarily at peak ripeness, before it has reached its climacteric. During the growing season, the leaves of the tree **photosynthesize** (take in carbon dioxide plus water plus sunlight) to produce sugars, which are transported to the fruit and stored in the form of starch. As the fruit begins to ripen, usually from the core outward, the starch is converted back to sugar.

When a sample fruit is cut horizontally through the core and sprayed with a mild iodine solution, the iodine turns the cells containing starch dark, but does not color those cells containing sugar. This is the **starch test**, which indicates visibly the stage of ripeness that a fruit has reached.



It is one of the easiest and most useful indicators available for the home orchardist. When only the area of the core is clear of starch, and the rest is dark, the fruit is usually unripe and immature. Fruit that you want to store should be picked when **one-half to three-quarters** of the sample cross section area is clear of starch. Usually at that point it has developed enough sugar to taste good (mature), and still retains sufficient starch to continue developing in storage (pre-climacteric). If most of the cross section of the fruit is clear of starch, it is too ripe for long storage and should be consumed at once or stored short-term only.

When using the starch test as a harvest indicator, test one or two sample fruit that look ripe for picking. If the test shows that they are ready, **pick just those fruit that are like the ones that you tested**, in terms of how much red color they have (in red varieties), and the green ground color turning to yellow. Do not pick fruit that are too different from the specimens you checked, or you will end up with a lot of fruit that is not mature. Fruit that has the best sun exposure, in the tree tops or on the south side of the tree, or in young trees with open branches, will normally ripen first. Pick those and come back a few days later and check the ones that are not ready at the first picking. Pre-mixed iodine solution for testing is available in 1-quart containers for home orchards, which should be enough for a couple of seasons. It can be ordered from orchard suppliers. Be sure to **discard iodine treated fruit**.

Another tool which tests fruit firmness is the **pressure tester** (see the section on pear maturity.) It is one of the primary tools used to test European pears. The only difference is that a larger probe is used for apples. This tool shows how firm or crisp a fruit is and how quickly it is softening.

An important fact to remember is that while those **varieties** that ripen later in the season are better suited for long-term storage, for each specific variety the **earlier harvested fruit will store the longest**. For example, Melrose typically ripens from the 10<sup>th</sup> to the 24<sup>th</sup> of

October. The Melrose fruit that were picked earliest, on October 10, will store better and longer than the ones picked later on. The reason for this is that fruits from the later picking of a given tree have less starch, are softer, and are closer to or past the climacteric and will therefore decline more rapidly in storage. It is interesting that many home orchardists store the last picked fruit when the opposite should be the case. The first fruits of a variety to be picked should be the ones stored.

### **When to pick pears?**

European pears divide into two basic categories: **fall** pears, that do not need a storage period before they are ready to use, and **winter** pears, that will not mature properly unless they are given a resting period in cold storage immediately after picking. The fall pears are earlier ripening varieties such as Bartlett, Clapp Favorite, and Orcas, while those that ripen later, such as Bosc, Comice, and Highland, are winter pears.

In either case, both fall and winter pears still look "green" at the time they are ready to pick. If you wait to pick your pears until they look ripe, with yellow skin color, they will be soft and soon rot in storage. In addition, since most pears ripen from the inside out, if left on the tree to ripen, many varieties will brown at the core--in other words, they are overripe in the middle. This is variety dependent but is particularly common in most fall pears. The Orcas pear is one fall variety that has not been plagued with this condition and ripens fairly well on the tree. However, if you want to store pears for a month or more, letting them ripen on the tree won't work. The earlier harvested fruit on a pear also stores the best for a given variety, and like apples the later season varieties (winter pears) have the longest storage potential.

How do you know, then, what is the right time? Commercial and research orchards use a hand-held **pressure tester**. This is an instrument with a spring scale that registers the amount of force (usually recorded in pounds) required to push a metal probe of specific area into the fruit. This measures the firmness of the fruit, and for pears it is quite a reliable indicator of the fruit softening as it ripens. However, the tester is relatively expensive, about \$150, not very practical for most people with only a couple of backyard trees. It can also be used to test your apples.

The best guide for the home orchardist is this: **when most pears are ripe, the stems will easily separate from the spur (at the abscission layer)** when the fruit is lifted. If you have to tug and pull to get the pear off, it usually is not ready. After picking, fall pears can be kept on a shelf at room temperature until ready to eat - when yellow color develops and the fruit begins to soften. Fall pears can be stored but usually do not keep for more than 4-6 weeks. Many people use their fall pears for canning and drying. Winter pears should be put into some kind of cold storage (below 40°F, down to 33°F) for at least **3 weeks**. After that period, you can start to bring out fruit as needed to soften up at room temperature. At first it may take 5 to 9 days before the pears are ready to eat; later on a couple of days at room temperature may be long enough.

One other tip is to record the day of harvest for your trees from year to year; usually they will be within a week of that harvest period each year. Start testing the fruit 1-2 weeks before the anticipated harvest date and before long you will be proficient at harvesting correctly.

**Asian pears** are similar to apples, in that they ripen on the tree and do not need an additional storage period to mature before they are ready to eat. In picking them, look for the color break, when green skin color starts to change to yellow. This is easily seen in yellow skinned varieties, but even with the tan and brown skinned fruit there is a distinct change from greenish to a golden undershade as the fruit gets ripe. Taste a sample fruit for sweetness, and if it is ready, pick any others that look similar. A refractometer (described above) is a more exact method for sugar testing. Asian pears can be stored but sometimes

develop a strong, winy taste if kept too long. When storing Asian pears loose in a box, it is a good idea to clip the stems short, because the stiff stems can puncture and damage the fruit. Fruits that rub will often become dark at the rub points.

### Storage Tips

For long term storage of any fruit, the key words are **cool and ventilated**. Cooling slows down the fruit respiration, which slows down senescence. Ventilation keeps ethylene and carbon dioxide from building up to damaging levels. Some people use old refrigerators set aside just for keeping fruit. If that is impractical, choose an area with low heat that does not go below freezing. A garage or shed, unheated porch, or dry basement area are possible locations. Avoid direct sunlight or areas with a wide range in temperature. Avoid confined unventilated areas. Fruit can be packed in ordinary boxes lined with newspaper or other padding. Some people use perforated plastic box liner bags (available from orchard suppliers) to prevent fruit from drying and shriveling in long storage. Plastic bags without holes for ventilation should not be used as they can cause buildup of trapped ethylene, which will speed up ripening and shorten storage life, while excess moisture contributes to rot. Avoid storing fruit with open blemishes as they will be a focus for rot. Check periodically for rotten fruits and remove them at once. The old timers knew what they were talking about when they said that "one rotten apple spoils the whole barrel". If picked at the proper time and given good storage, many of our best apples and pears can be enjoyed for months after the harvest season is over.

# PATENT ABSTRACTS OF JAPAN

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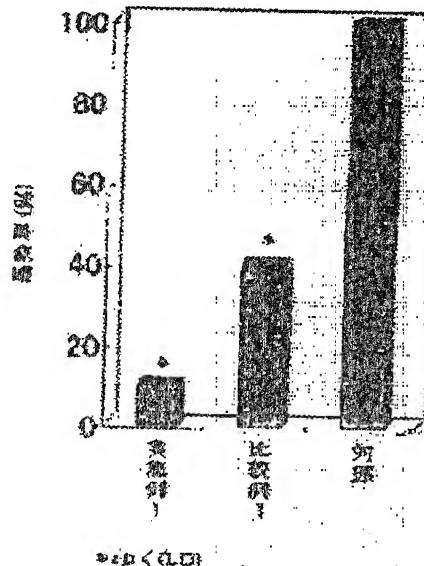
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## (54) ANTIMICROBIAL, INFECTION PREVENTIVE AND FOOD PRODUCT AGAINST HELICOBACTER PYLORI BACTERIA

### (57) Abstract:

**PROBLEM TO BE SOLVED:** To obtain the subject antimicrobial and infection protective against Helicobacter pylori by blending a fruit polyphenol-containing fruit juice obtained from fruits belonging to the family Rosaceae or a fruit polyphenol isolated from the fruit juice as an active ingredient.

**SOLUTION:** The objective antimicrobial and infection protective against Helicobacter pylori bacteria are obtained by using a fruit polyphenol-containing fruit juice obtained from fruits belonging to the family Rosaceae or a fruit polyphenol (e.g. apple polyphenol or the like) isolated from the fruit juice as an active ingredient, blending a preservative, e.g. sodium benzoate, methyl p-hydroxybenzoate, sodium dehydroacetate or the like, a solution adjuvant, e.g. sodium salicylate, sodium acetate, sodium benzoate or the like, and further, when necessary, a colorant, a perfume, a flavor, a sweetener or the like and in addition, when necessary adding a diluent, e.g. water or ethanol, to pharmaceutically manufacture.



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 KADOTA SHIGETOSHI

**(54) PREVENTIVE AND THERAPEUTIC AGENT FOR GASTRITIS AND GASTRIC AND DUODENAL ULCER****(57)Abstract:**

**PROBLEM TO BE SOLVED:** To obtain a drug which contains a specific naturally occurring herbal medicine or its extract of which safety is confirmed as an active ingredient, inhibits the growth of *Helicobacter pylori* and is effective for prevention and treatment of gastritis, gastric and duodenal ulcers and the like.

**SOLUTION:** This preventive and treatment agent contains hop or its extract having the inhibitory action on the proliferation of *Helicobacter pylori* as an active ingredient. The hop can be used in the form of the whole plant, strobile, hop pellet, hop extract or isolated hop extract which are used in beer brewing. In addition, the hop extract is fractionated to the α-acid and/or β-acid fraction and they are further fractionated and concentrated and the products can be used. The daily dose of this medicine is about 1,2,000mg/adult, particularly 10–1,000mg/adult. This agent can be orally given as it is or may be added to beverage and food and daily ingested.

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